



AIR FORCE HSI

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Success in Integration



Joint Precision Airdrop System (JPADS)

Payoff

The ultimate goal of the Joint Precision Airdrop System (JPADS) is to resupply troops anywhere in the world within 24 hours with supplies flown in directly from U.S. bases. JPADS satisfies four air drop capability gaps: increased ground accuracy, standoff delivery, increased air carrier survivability, and improved effectiveness of airdrop mission operations. By minimizing risk to personnel and system survivability with a stand-off, high altitude drop capability, ground and air forces will be better protected, and detection of ground forces and supplies will be reduced. The use of sensor and Global Positioning System (GPS) technology provides better wind and drop altitude estimates for more accurate delivery of supplies. Taking advantage of ram-air drogues significantly increases the rate of descent of the cargo over conventional drops, yet controls the stability and lateral movement of cargo.

Accomplishment

The simplicity of the system requires minimal training in its use. Loadmasters, using a portable mission-planning tool and wireless communications, can update mission plans into JPADS with last-minute changes to drop zone location, threats, etc. Manpower requirements and cognitive skills and abilities remain unaffected.

JPADS can accurately deliver supplies to locations that would normally require surface transportation. This precision delivery system will reduce the risk to ground forces, lower U.S. footprint in combat environments, and increase the speed of the supply chain while relieving system stress to the forward supply activities. JPADS also employs "drop zone sensors" dropped from the aircraft prior to cargo release and monitored via GPS, to track wind forces and direction. Release point altitudes and flight plans for each of the guided cargo systems can then be automatically updated.

The Rapid Aerial Delivery (RAD) technique of JPADS, also known as the "Screamer," uses a small steerable ram air drogue parachute to drop cargo at a 100 mph rate of descent to a predetermined location, then deploys a



main conventional parachute for the final descent. This capability enables standoff delivery of multiple existing cargo configurations from offset positions.

JPADS has increased the probability of successful air drops so much, that air drop has become the reliable means of delivering supplies into the combat zone. JPADS is considered faster and more accurate than surface transportation, and relieves stresses to an overburdened forward supply chain. It may even eliminate completely the need for supply convoys. Use of JPADS can lower the U.S. footprint in combat environments contributing even further to personnel and system survivability.

Background

Capability to air drop troops, supplies, or equipment is one of ten priorities in NATO's Defense Against Terrorism (DAT) effort. JPADS, developed by Air Mobility Command, Natick Soldier Center, Air Force Special Operations Command, and U.S. Joint Forces Command, meets this priority. Air drops are performed at high altitudes in order to protect both aircraft and cargo. However, the higher the altitude for airdrop, the harder it is to ensure that the cargo will land at the landing zone. To enable more precision, AF-SOC will risk low-level drops. Low-level drops expose the plane and its crew to enemy anti-aircraft fire and Man Portable Air Defense Systems -- very real threats to U.S. operations in Afghanistan and Iraq.

HSI Domains Addressed: Human Factors Engineering, Manpower, Personnel, Training, Environment, Safety, Occupational Health, Habitability, and Survivability

Information Source: AMC/NTSC; www.defense-update.com/features/du-1-07/feature_aerialdelivery.htm